REMARKS

The application includes claims 1-3, 5, 6, 8-21 and 29-32 prior to entering this amendment. The application remains with claims 1-3, 5, 6, 8-21 and 29-32 after entering this amendment. No new matter is added and reconsideration is respectfully requested.

Election/Restrictions

The examiner restricted out claims 29-32 from claims 1-3, 5, 6, 8-21. The examiner alleged that claims 1-3, 5, 6, 8-21 did not require that the document partially bend around the idle roller while at the same time partially separating away from the belt.

Claims 29-32 have been amended to remove the language "the document partially bends around the idle roller while at the same time partially separating away from the belt". Accordingly, claims 29-32 should no longer be restricted out from claims 1-3, 5, 6, 8-21.

Claim Objections

The examiner objected to claim 18 due to informalities. Claim 18 has been amended as suggested by the examiner.

Claim Rejections - 35 U.S.C. § 103

The examiner rejected claims 1-3 and 9-14 under 35 U.S.C. § 103(a) as being unpatentable over Takahashi (Jap. Pat. No. 58152737).

The examiner rejected claims 5-8 under 35 U.S.C. § 103(a) as being unpatentable over Takahashi in view of Enders (U.S. Patent 6,481,710).

The examiner rejected claim 11 under 35 U.S.C. § 103(a) as being unpatentable over Takahashi in view of Munenaka (U.S. Patent 6,330,404).

The examiner rejected claims 15, 17-19, and 21 under 35 U.S.C. § 103(a) as being unpatentable over Applicants' admitted prior art in view of Takahashi.

The examiner rejected claim 16 under 35 U.S.C. § 103(a) as being unpatentable over Takahashi in view of DeBarber (U.S. Patent 5,740,728).

The examiner rejected claim 20 under 35 U.S.C. § 103(a) as being unpatentable over Takahashi in view of Applicants' admitted prior art and Enders.

These rejections are all respectfully traversed. However, the claims have been amended to further clarify the patentable subject matter.

For example claim 1 has been amended and now recites:

1. (Currently Amended) A document feeder mechanism, comprising:

one or more drive rollers;

one or more belts capable of tightening around the drive rollers, wherein at least one of the drive rollers is capable of driving the one or more belts;

a single idle roller; and

an elastic member attached at one end to the idle roller and attaehed at the other end to a body structure retaining the sheet feed mechanism, the elastic member configured to exert a force that presses the idle roller against the one or more belts, wherein the drive rollers, idle roller and one or more belts are further eonfigured to:

move a doeument from a feed-in path to a feed-out path, wherein a direetion of the feed-in path and a direetion of the feed-out path are both substantially parallel to eaeh other and also parallel to a direetion of the foree exerted by the elastie member on the idle roller; and

reeeive the doeument from the feed-in path, feed the document in-between the one or more belts and only the one single idle roller so that the document wraps substantially 180 degrees around only the one single idle roller, and output the document from the one single idle roller direetly to the feed-out path.

Takahashi in FIG. 2 discloses pulleys 3, 4 that are rotated to engage a toothed belt 11,12. Movable pulleys 13,15 and fixed pulleys 14,16 are put in pressure contact with the belt. Paper 21 is brought through a chute 1 in a direction (b) and conveyed as the belt 11,12 is moved. The paper 21 is elevated while being pinched between the belt 11,12 and first pulley 13,15. The paper is moved further while being pinched between the belts and the second pulley 14,16 (translated abstract).

The paper 21 in Takashi is not fed in-between an elastic member and only one single idle roller as recited in claim 1. Takashi feeds paper 21 between belt 11,12 and <u>two</u> pulleys 13,15 and 14,16. Paper 21 in Takashi is also not wrapped 180 degrees around only a single idle roller as also recited in claim 1. The paper 21 in Takashi is first transported 90 degrees by the first roller 13, 15 and then transported another 45 degrees by the second roller 14,16 (FIG. 2).

Elders describes a print roller 2 in FIG. 2. However, the print roller 2 is not attached to an elastic member that presses the print roller against one or more belts. Enders does use a tensioning roller 10 for maintaining tension on belt 7. However, paper is never feed between the tensioning roller 10 and belt 7 (col. 3, lines 23-31).

Munenaka shows a system for forming images on a medium T (col. 6, lines 13-63). An elastic member 13A is attached to a follower roller 13 to provide tension on a belt 100 (col. 7, lines 17-29). However, the medium T is only conveyed horizontally to a fixing portion 10 disposed at the longitudinal end of the belt of the conveying apparatus 7 (FIG. 1; col. 7, lines 1-7). Accordingly, the medium T is never wrapped substantially 180 degrees around only one single idle roller as recited in claim 1.

Debarber shows a force roller 234 mounted to a compression spring 252 (FIG. 1; col. 4, lines 7-16). The compression spring 252 biases the force roller 234 upward and into contact with the belt 210 (col. 4, lines 13-16). However, an envelope 20 is only transported in a horizontal direction along a deck 240 (FIG. 1, col. 4, lines 17-29). Accordingly, the force roller 234 in Debarber does not feed a document in-between one or more belts and one single idle roller so that the document wraps substantially 180 degrees around only the one single idle roller as recited in claim 1.

For at least these reasons claim1 is patentable under 35 U.S.C. § 103(a) over Takahashi. Claim 29 includes at least some of the same elements as claim 1 and are therefore patentable for at least some of the same reasons.

Claim 2 now recites:

a first upper one of the drive rollers is spaced above the idle roller and a second lower one of the drive rollers is spaced below the idle roller and directly underneath the first upper one of the drive rollers,

a first upper portion of the one or more belts is suspended by the first upper one of the drive rollers vertically up against a back end of the idle roller and vertically above a top end of the idle roller, and

a second lower portion of the one or more belts is suspended by the second lower one of the drive rollers vertically up against the back end of the idle roller and vertically below a bottom end of the idle roller.

Claim 3 now recites:

a center rotation axis of the first upper one of the drive rollers and a center rotation axis of the second lower one of the drive rollers are both located behind a front end of the idle roller, the front end of the idle roller configured to receive the document from the feed-in path and output the document to the feed-out path, and

the center rotation axis of the first upper one of the drive rollers and the center rotation axis of the second lower one of the drive rollers are located behind a center rotation axis of the idle roller.

Takashashi shows pulleys 7,10 and 3,4. However, there is no lower drive roller located directly underneath an upper drive roller as recited in claim 2. The pulley 7,10 Takashashi is located behind pulley 3,4. Takashashi also does not teach drive rollers that suspend a belt against an idle roller and that are also located behind a front end of an idle roller as recited in claim 3. Both pulley 7,10 and pulley 3,4 are located in front of both idle rollers. The center rotation axis for both pulleys 7,10 and 3,4 are also not located in back of the center rotation axis of an idle roller as also recited in claim 3. The center rotation axis for both pulleys 7,10 and 3,4 are located in front of the rotation axis of idle roller 13,15 and idle roller 14,16.

Elders does not even have an idle roller as recited in claim 1. Regardless, the bottom roller 8 in Elders is located in back of the upper roller 8 and not located directly underneath the upper roller. The belt 7 in Elders is also wrapped around the back circumference of drum 2 and not suspended vertically above and below the drum 2. Further, the central rotation axis of the top roller 8 is located in front of the center rotation axis of drum 2 and not behind a center axis of an idle roller as recited in claim 3.

Munenaka also does not have two drive rollers that are located directly underneath each other and does not have drive rollers that suspend a belt vertically against the back end of an idle roller as recited in claim 2. The roller 14 in FIG. 2 of Munenaka is located in front of follower roller 13 and there is no second roller located underneath roller 14.

Debarber has pulleys 232 and 222 but none of the pulleys are located above and below either of the tensioner pulleys 230 or 234. The belt 210 in Debarber rides over tensioner pulleys

230 or 234. However, the belt 210 is never vertically suspended against a back end of either of the tensioner pulleys 230 or 234 and is never suspended vertically above and below the tensioner pulleys 230 or 234. As also mentioned above, letter 20 in Debarber is also not wrapped 180 degrees around pulley 230 or pulley 234.

For these reasons claims 2 and 3 are separately patentable under 35 U.S.C. § 103(a) over Takahashi, Enders, Munenaka, and DeBarber. Other claims include at least some of the same elements as claims 2 and 3 and are therefore patentable for at least some of the same reasons.

Claim 16 recites:

the elastic member is configured to move the idle roller towards a substantially single tangential contact location on the one or more belts that is substantially perpendicular to the direction of force exerted by the elastic member against the idle roller, substantially perpendicular to the direction of the feed-in path, and substantially perpendicular to the direction of the feed-out path.

The examiner acknowledges that Takahashi does not disclose an elastic member configured to move the idle roller toward a substantially single tangential contact location on the one or more belts that is substantially perpendicular to the direction of force exerted by the elastic member against the idle roller. However, the Examiner alleges that Debarber teaches the use of an elastic member 252 that is configured to move the idle roller 234 in a substantially single tangential contact location on the belt 210 that is perpendicular to the direction of force exerted by the elastic member against the idle roller.

However, the contact location between the roller 234 and the belt 210 in Debarber is parallel to the direction of travel of the letter 20 and not perpendicular to the direction of the feed-in path and perpendicular to the direction of the feed-out path as recited in claim 16.

For at least this reason claim 16 is patentable under 35 U.S.C. § 103(a) over Takahashi in view of DeBarber.

Conclusion

For the foregoing reasons, reconsideration and allowance of claims 1-3, 5, 6, 7-21, and 29-32, are respectfully requested. The examiner is encouraged to telephone the undersigned if it appears that an interview would be helpful in advancing the case.

Customer No. 73552

Respectfully submitted,

STOLOWITZ FORD COWGER LLP

Stephen S. Ford
Reg. No. 35,139

STOLOWITZ FORD COWGER LLP
621 SW Morrison Street, Suite 600
Portland, OR 97205
(503) 224-2170